概率论系列报告

报告题目(Title)： Some approximations results on the Φ_3^4 model

报告人(Speaker)： 朱湘禅 博士 北京交通大学

时间(Time)： 10 月 26 日(周一)下午 3：00-4：00

地点(Venue)：北京大学理科一号楼 1479

摘要(Abstract)：We study the lattice approximations to the dynamical Φ_3^4 model by paracontrolled distribution proposed in [GIP13]. We prove that the solutions to the lattice systems converge to the solution to the Φ_3^4 model in probability locally in time. In three spatial dimensions Φ_3^4 model are not well defined in the classical sense. Renormalisation has to be performed in order to define the non-linear term. Formally, this renormalisation corresponds to adding an infinite mass term to the equation which leads to adding a drift term in the lattice systems.

We also give a version of the Wong-Zakai theorem for the dynamical Φ_3^4 model driven by space-time white noise on $\mathbb{T}^3$. Compared to the results in [Hai14] we consider the piecewise linear approximations to the space-time white noise and prove that the solutions to the model driven by the piecewise linear approximations converge to the solution to the Φ_3^4 model.

[GIP13] M. GUBINELLI, P. IMKELLER, and N. PERKOWSKI. Paracontrolled distributions and singular PDEs. ArXiv e-prints (2014). arXiv:1210.2684v3.

[Hai14] M. HAIRER. A theory of regularity structures. ArXiv e-prints (2013). arXiv:1303.5113. Invent. math. (2014) 198:269–504

欢迎参加